Algebra 2 Bellwork Friday, September 19, 2014

Use these functions: $f(x) = x^2 + 3x - 5$ $g(x) = x - 4$ $h(x) = \frac{2x-1}{x+3}$

1. Find $f(g(x))$. Simplify as much as possible.

2. Find $g(h(x))$. Simplify as much as possible.

4. Find $f(g(7))$

5. Find $f(h(4))$

6. Write the equation of the line that passes through this pair of points: $(-6,3)$ & $(12,15)$

7. Write the equation of the line that passes through this pair of points: $(4,6)$ & $(4,-10)$

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1. Find $f(g(x))$. Simplify as much as possible.

2. Find $g(h(x))$. Simplify as much as possible.

$(x-4)^2 + 3(x-4) - 5 = x^2 - 5x - 1$

$x^2 - 8x + 16 + 3x - 12 - 5$

$\left(\frac{2x-1}{x+3}\right) - 4 \cdot \frac{x+3}{x+3} = \frac{2x-1-4(x+3)}{x+3}$

$\frac{2x-1-4x-12}{x+3}$

$\frac{-2x-13}{x+3}$

4. Find $f(g(7)) = 13$

$g(7) = 7-4 = 3$

$f(3) = (3)^2 + 3(3) - 5$

$9 + 9 - 5$

5. Find $f(h(4)) = -1$

$h(4) = \frac{2(4)-1}{4+3} = \frac{7}{7} = 1$

$f(1) = (1)^2 + 3(1) - 5 = 1 + 3 - 5$

6. Write the equation of the line that passes through this pair of points: $(-6,3)$ & $(12,15)$

$m = \frac{15-3}{12-6} = \frac{12}{18} = \frac{2}{3}$

$y - 3 = \frac{2}{3}(x+6)$

or $y - 15 = \frac{2}{3}(x-12)$

or $y = \frac{2}{3}x + 7$

7. Write the equation of the line that passes through this pair of points: $(4,6)$ & $(4,-10)$

$x = 4$